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(54) Title: SYSTEM FOR USING ARTICLE OF COMMERCE TO ACCESS REMOTE COMPUTER
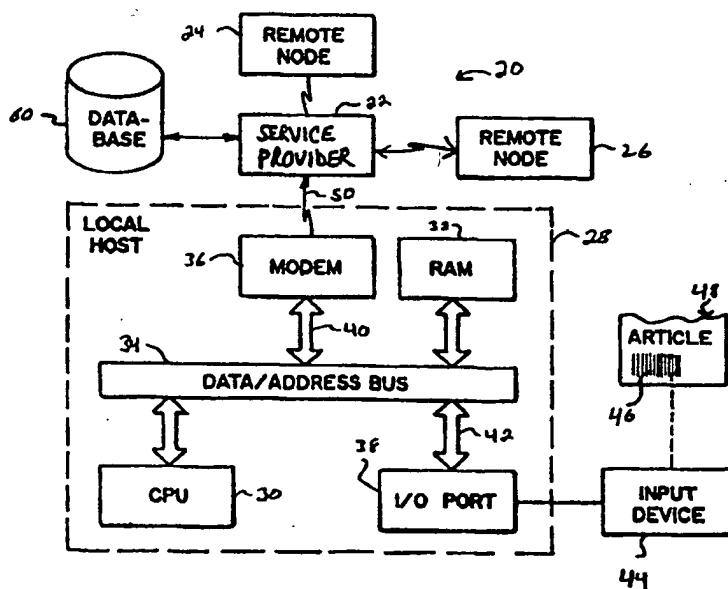
(57) Abstract

A system and method for using identification codes found on ordinary articles of commerce (48) to access remote computers (24, 26) on a network (20). In accordance with one embodiment of the invention, a computer is provided having a data base (60) that relates uniform product code numbers (UPC) to Internet network addresses. To access an Internet resource relating to a particular product, a user enters the product's UPC symbol manually, by swiping a bar code reader over the UPC symbol (46), or via other suitable input means. The database (60) retrieves the URL corresponding to the UPC code. This location information is then used to access the desired resource.

SYSTEM FOR USING ARTICLE OF COMMERCE TO ACCESS REMOTE COMPUTER

Field of the Invention

This invention relates to computer communications generally, and more specifically to techniques for giving users convenient access to information located on computer networks such as the Internet.

Background of the Invention

A computer network is a set of computers (or "hosts") which are able to communicate electronically. In logical terms, the network can be viewed as a set of nodes or "sites", with each computer on the network being home for one or more nodes. Generally speaking, each host is assigned a numeric address, which the network uses to route information to that particular host. To facilitate human use of networks, addresses are often given alphanumeric codes (or "mnemonics"), which are easier for people to remember. For example, the numeric address 200.98.322.56 may be assigned the mnemonic "sample.com."

At the present time, the world's most important network is the Internet. The Internet is a massive worldwide collection of computer resources, connected together in network fashion by a series of communication protocols known as TCP/IP. Many sites on the Internet can be accessed in accordance with popular standard protocols or formats such as Gopher and Hypertext Transport Protocol ("HTTP"). These sites act as remote servers, providing information to users' computers (or "clients") in accordance with a particular format or protocol. The client system (often an individual's

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personal computer) must have the necessary software to handle the server's particular protocol.

For example, sites set up in accordance with HTTP are nicked-named "Web sites". If a user wants to access Web sites, she must have a computer connected to the Internet and equipped with software for communicating in accordance with the HTTP protocol. Such software is often called a "browser," because it allows users to browse (or, in the parlance of the enthusiasts, "surf") from Web site to Web site, much the way one might browse through a library. This process is facilitated by the fact that most Web sites have hypertext links to other Web sites, which the user can activate by clicking a mouse on a highlighted portion of the screen.

Typical browser software also maintains a list of sites the user has visited, which the user can recall using commands such as "back" and "forward." These commands, coupled with the hypertext links between Web sites, give users the sensation of "navigating" through a seemingly infinite realm of information, which is popularly referred to as "cyberspace" or the "World Wide Web."

Users can also specify a Web site by manually typing in the site's location as a Uniform Resource Locator ("URL"). The URL specifies the precise location of a particular resource, and has three fields:

<resource type> <domain name> <path>

Domain name, as explained above, is the alphanumeric network address of the host on which a particular resource resides. The "path" is the specific directory and file on the host where a resource is stored. A typical URL is

http://bongo.cc.utexas.edu/~neural/cwsapps.html.

For example, the command "Go <URL>" would cause browser software to request the information residing at the site specified by the URL. This is called "pointing" the browser to the desired Web site. The Web server at

the designated URL processes the browser's request by
transferring a copy of the file specified by the URL to
the user's local host computer. The transferred file
includes embedded commands in the hypertext markup
5   language ("HTML"), which cause the client's browser
software to display and handle the transferred file in a
desired manner.

Cyberspace is not limited to the World Wide Web
or the Internet. Massive amounts of information are also
10   available on networks maintained by on-line service
providers under the service marks CompuServe, Prodigy and
America Online, for example. Users typically access
these on-line services via telephone modem connection.
To the end user, these networks appear to be a series of
15   sites or locations or "rooms" offering various types of
information. 'The addresses for these locations are
assigned by the on-line service providers. Navigation
among these locations is handled by proprietary client
software, which runs on the user's personal computer.
20   Many users learn of resources on the Internet
or a proprietary on-line service through magazine
articles and advertisements. These articles and
advertisements include the necessary URL or other network
address to access the desired site. Many publications
25   compile lists of sites they deem particularly worthwhile.
When a user sees a listing for a site which looks
interesting, he can manually enter the published URL or
other mnemonic address into his browser or other
software, and access the site.
30   We realized that published computer addresses -
- whether URLs or otherwise -- were difficult for people
to use because they have to be tediously entered into
their computers. A good example of an address which may
be difficult to enter is the University of Texas address
35   cited above. The problem is particularly acute for
persons with a visual or physical disability.

Another problem using the Internet, we realized, is that many users have trouble even finding URLs or other network addresses for desired sites such as Web pages. Accordingly, Web site sponsors publish their

5   Web site URLs in print advertising and on packaging. The difficulty with this approach however is that the URLs are still long, and cumbersome to remember and enter into a computer.

We have proposed to resolve these problems by

10   allowing people to access published locations without having to manually enter the published address. In accordance with one embodiment of the invention, the mnemonic address or verbal description of a network location is published along with the location's numeric

15   address in bar code format. The user's computer is equipped with a bar code reader and browser software. The bar code reader is suitably interfaced to the computer's browser software to allow bar code input to be accepted as address information. When the user sees an

20   interesting published address, he scans the associated bar code using the bar code reader, thereby loading the desired numeric address into the browser. The browser then accesses the Web or other site corresponding to that numeric address.

25   We are finding several problems with this and other approaches that have been tried. First, some URLs and other network addresses contain upwards of 20-30 characters, and therefore require very long bar code symbols, which can clutter advertising and packages, and

30   may not be practical from either an esthetic or technical perspective. Second, placing URLs on printed material (whether or not in bar code format) requires manufacturers to redesign products, packaging and/or advertisements, and many manufacturers may be reluctant

35   to do this. Third, pervious proposal, if the network address is changed, the package needs to be redesigned,

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and packages already in the marketplace will have
incorrect address information.

Summary of the Invention

   The present invention offers a better way for
5 consumers and others to access resources on remote
computers, particularly Web sites. In accordance with
one aspect of the invention, the dissemination and entry
of network addresses is accomplished by means of existing
identification standards (e.g., bar codes) found on
10 ordinary products like soup or soda, in conjunction with
a centralized database of network locations.

   One embodiment of the invention is a system in
which a bar code or other indicia is associated with a
product or other article of commerce. The indicia
15 encodes (in human and/or machine readable form) a UPC or
other identification number, which is associated with the
article in accordance with an extrinsic standard. A
computer database is provided that relates standard UPC
codes to Internet URLs or other network addresses. To
20 access a network resource relating to a particular
product, the user swipes a bar code reader across the
product's UPC symbol. The database then retrieves the URL
corresponding to the UPC product data. This location
information is then used to access the desired resource
25 on the network.

   In accordance with another aspect of the
invention, network addresses are directly encoded into
bar code format. In this manner, the necessity of
manually entering the address is eliminated. Users can
30 more quickly review published lists of Web Sites or other
locations. The bar coded address can also be printed on
removable stickers or detachable cards, allowing users to
readily clip the stickers or cards for future reference.

   In accordance with yet another aspect of the
35 invention, navigational commands (in addition to
addresses) can be published together in both human-
readable and bar code formats. These commands include

common commands, such as "back" and "forward" as well as more specialized command sequences, such as the commands necessary to access particular services, files, and documents on the Internet or the proprietary on-line services. Rather than manually enter these commands, the user selects a desired command by scanning its associated bar code. The output of the bar code reader is accepted by the browser software as the selected command.

The invention offers a number of important advantages. First, because product identification information is already widely disseminated using standardized and pre-assigned codes, the invention eliminates the need for separately disseminating domain names or other network location data. Further, the invention can be implemented without requiring manufactures to redesign packaging or other articles, or to develop special bar code indicia. This overcomes a Catch-22 often facing new technologies: manufacturers will not participate until there is widespread consumer interest; consumers are not interested until there is widespread manufacturer participation. With the invention, mass participation by manufacturers in the technology is automatic.

Second, the invention allows practical use of bar codes and other machine readable media for entry of network location data. As we realized, encoding URL data in bar code format is not practical because the resulting bar codes are too long. By using existing UPC product codes in combination with the database of network locations, users have the benefit of bar code or comparable technology for entering network location data. Thus, the necessity of manually entering the address is eliminated. Users can access a desired site by simply using a bar code reader. The UPC can also be printed on removable stickers or detachable cards, allowing users to readily clip the stickers and cards for future reference. This is particularly useful when the user reads about the

location at a time when he does not have access to a computer.

Third, the invention overcomes the problems encountered when network addresses are changed. Network addresses can change as companies reorganize their on-line marketing strategies. Also, Internet addresses are assigned by an independent third party -- InterNic -- which may in some cases have the authority to unilaterally change a company's address. Finally, unforeseen trademark conflicts (involving for example Internet domain names) may require adoption of new addresses. With the invention, a new address assignment requires only that the database of addresses be updated. Products, packaging, advertisements and the like bearing the standard identification codes need not be redesigned.

Brief Description of the Drawings

FIG. 1 is a block diagram of a computerized system for interfacing with a computer network in accordance with the invention;

FIG. 2 is a perspective view of the local host computer shown in FIG. 1;

FIG. 3 is an enlarged view of the article of commerce shown in FIG. 1, illustrating in detail the UPC symbol thereupon;

FIG. 4 is a tabular view of the database shown in FIG. 1;

FIG. 5 is a flow chart illustrating the operation of the system of FIG. 1 in accordance with the invention;

FIG. 6 is an idealized view of the CRT screen of the client system of FIG. 1 displaying information in accordance with the invention;

FIG. 7 is a perspective view of articles of commerce which can be used in accordance with the invention to access remote computers;

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FIG. 8 is a block diagram of a computerized apparatus for interfacing with a computer network in accordance with a second embodiment of the invention;

FIG. 9 is an idealized perspective diagram of the document of FIG. 8 having a network address in both bar code and human readable formats; and

FIG. 10 is a flow chart illustrating the operation of the apparatus of FIG. 8 in accordance with the invention.

Detailed Description of the Preferred Embodiment

1. Overview

FIG. 1 is a block diagram illustrating one application of the invention, namely the use of an ordinary article of commerce to access sites on the Internet's World Wide Web. As explained below, this embodiment of the invention allows a person who desires Internet resources concerning a particular product to access those resources using the product's UPC symbol. The data encoded on the UPC symbol can be entered manually or (for greater convenience) using a bar code reader.

Referring to FIG. 1, the Internet 20, illustrated here in generalized format, includes a service provider 22 and two remote nodes 24 and 26. In this case, service provider 22 is a local Internet access provider. Service provider could also be an online service provider, such as America OnLine® , Compuserve® , Microsoft® Network and Prodigy®. In such cases, local host 28 need not be on Internet 20 -- that is, need not have a network address.

An end-user (not shown) accesses Internet 20 using local host 28, which in this case is an IBM compatible personal computer including a CPU 30, a random access memory 32 and an address/data bus 34 by operatively connecting CPU 30 and memory 32. Unless otherwise specified, the term "memory" herein includes

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any storage device, including RAM, ROM, tape or disk
drives (or collections or networks of tapes or disk
drives), and any other device for storing information.
A modem 36 and I/O port 38 are attached to bus 34 by a
suitable interfaces 40 and 42, respectively. An input
device 44 is connected to bus 34 via I/O port 38. Input
device 44 is a commercially available wand-style bar code
reader reads a Uniform Product Code ("UPC") bar code
symbol 46 affixed to an article of commerce 48.
Alternatively, input device 44 could be a card reader,
optical character or voice recognition system, touch
screen, scanner, pen, keyboard or other known input
device.

Local host computer 28 need not be a personal
computer, and could for example be a mainframe or
minicomputer having a terminal by which the user could
enter and receive data. In that arrangement, input
device 44 would be attached to the terminal.

Modem 36 is adopted for electronic
communication via a suitable telephone link 50 with
service provider 22. Computer 28 functions as an
Internet host because it is connected to service provider
22 using Point to Point Protocol ("PPP") via telephone
link 50. Other telecommunications channels may be used,
such as ISDN or a connection which incorporates a third
party intermediary network such as TymNet^{sm}.
Alternatively, local host 28 could be connected directly
to Internet 20, as is likely to be the case where local
host 28 is a larger computer, such as mainframe. FIG. 2
offers a perspective view of local host 28 and article of
commerce 48 and also illustrates a CRT monitor 52 and
keyboard 54 suitably coupled to bus 34.

In this illustration, local host 28 is used to
access Internet resources (or "Web sites") on remote
nodes 24 and 26, which are available using the HTTP
protocol. HTTP uses a client-server architecture, with
remote nodes 24 and 26 acting as servers, and local host

28 acting as a client. Local host is equipped with Netscape Navigator brand Web browser software which enables it to function as an HTTP client.

Remote notes 24 and 26 have pre-assigned network locations (or "domain names"), and desired resources (such as a particular Web site) are located in specific directories and files (or "paths") resident on a remote nodes 26 and 28. The precise locations of those resources are specified using URL, which, as explained above, includes three fields: <resource type> <domain name> <path>. To access resources of a particular remote node 24 or 26, local host 28 requests those resources from Internet 20 using the appropriate URL. Thus, the URL functions as a more precise kind of network address than a domain name.

The URL required is often supplied by the user. Users learn about the existence of a desired resource (and its corresponding ULR) through a variety of means, including publication in a printed advertisement. In current practice, the URL acquired from a printed source must be entered using a keyboard. As explained above, this can be tedious. Moreover, in many cases, users may have trouble finding references to desired Web pages.

2. Article of Commerce

In accordance with the invention, access to desired resources on remote nodes 24 and 26 is achieved using an article of commerce 48. The term "article of commerce" includes tangible things that are sold or moved through commerce, such as consumer products, packaging, and printed media including books, newspapers, magazines, stickers, fliers, cards, tags and labels. Article 48 bears a standard UPC bar code symbol or indicia 46. Symbol 46 is shown in greater detail in FIG. 3, and may be affixed to article 48 in any suitable manner, including printing directly on the article or its packaging, or applied to labels or tags attached or

otherwise affixed to the article. In accordance with UPC
standards, symbol 46 encodes a ten-digit number (the
"product identification number"). As shown in FIG. 3,
the product identification number encoded in UPC symbol

5   46 consists of two five-digit fields, A and B. Field A
is a unique, pre-assigned number signifying a particular
manufacturer. Field B is a number identifying one of the
manufacturer's products. In the United States, UPC
product identification numbers are assigned by the

10   Uniform Code Council, Inc.

          UPC symbol 46 provides a machine-readable
number that uniquely identifies a particular product and
its manufacturer. This is useful at the retail point-of-
sale, where purchase of a particular item is recorded by

15   scanning the item's bar code symbol.

          There are numerous other formats and systems
for assigning product identification numbers to articles
of commerce. For example, the International Article
Numbering Association ("EAN") assigns its own number to

20   products outside of the U.S. and Canada, and uses a
different symbology than used with the UPC. Product
identification codes for books are provided by the
International Standard Book Numbering System ("ISBN") and
are encoded using a symbology specified by that

25   organization. Likewise, magazines and serial
publications are assigned product identification codes by
the International Standard Serial Numbering System
("ISSN").

          These numbering systems share at least three

30   characteristics. First, for purposes of this invention,
the identification numbers may be assigned in accordance
with an "extrinsic" standard. By extrinsic, it is meant
that the assignment of numbers is made a by group or
association for the purpose of identifying articles of

35   commerce. It is likely that new types of identification
numbers will arise in the future, as will new
organizations for assigning and administering those

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numbers, and the present invention contemplates use of both existing and future extrinsic identification numbers and formats.

Second, the identification numbers may have recognized significance as numbers identifying articles of commerce. The level of recognition may be among the general public, or a defined subset, such as a particular industry or occupation.

Third, the identification numbers may be encoded in a standard, machine readable format -- namely, bar codes. Other machine readable formats may also be used for this purpose, including magnetic stripes or optical character recognition ("OCR"), and the present invention could be practiced with product identification numbers encoded in those formats as well.

3.   URL/UPC Database

In accordance with the invention, service provider 22 includes a relational database 60, which is shown in more detail in FIG. 4. Database 60 includes records 62-68, which are accessible using a suitable database management system software. Each record 62-68 of database 60 contains four fields 70-76. Fields 70 and 72 contain a UPC product identification number, as explained below. Field 74 holds a URL suitable for locating a resource on the Internet. Depending on the application, other network addresses -- either numeric or mnemonic, physical or virtual -- may be used. Field 76 holds a narrative description of the resource addressed in field 74. This particular arrangement of fields is but one illustration of how the invention may be practiced. For example, additional fields could be provided, or the UPC product identification number could be held in a single field.

Each record 62-68 of database 60 associates a UPC product identification number (contained in fields 70 and 72) with a particular Internet URL and narrative

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description (contained in fields 74 and 76,
respectively). The association is based on selected
criteria. In this case, the criteria is the existence of
a Web resource sponsored by the manufacturer of the
5   product identified by the UPC number in fields 70 and 72.
(If no such resource exists, then the particular product
identifier can be omitted from database 60). Other
criteria can be used. For example, the association could
be based on the existence of a Web site simply referring
10   to or relating to the product.

As stated, fields 70 and 72 contain a UPC
product identification number. Field 70 contains the
first five digits of the product identification number
(field A of FIG. 3). As explained above, these digits
15   uniquely identify the product's manufacturer. Field 72
contains the second five digits of the product
identification number (field B of FIG. 3). These digits
identify the manufacturer's particular product. In some
cases, a manufacturer may have many products and only
20   one Web site or other Internet resource. In that case,
field 72 may be left blank, as shown in cell 78 of record
68. When field 72 is left blank, database 60 associates
the Web resource indicated in field 74 with any product
identification number whose first five digits match the
25   manufacturer number specified in field 70.

Database 60 itself is accessible via service
provider 22, which is equipped with Web server software
such as provided by Netscape Communications, Inc. The
server software provides access to an HTML document (the
30   "Query Page") resident on service provider 22 at a
predetermined URL. The Query Page, when displayed on CRT
52 by local host 28 using a forms-capable browser allows
the user to enter a query in the form of a UPC product
identification number. Alternatively, database 60 could
35   be resident on local host 28 or another remote computer
24 or 26. The Web server at service provider 22 may have
a predetermined URL location. Browser software resident

in local host computer 28 may be configured to automatically request that predetermined URL location when the browser software is initially loaded.

5   Database 60 may be incorporated with a database or search engine of Web sites or other Internet resources (such as the Yahoo or Lycos databases). In that case, the Query Page may give the user the option of entering a UPC number or an alternative search term, such as a portion of the URL or the topic to which the desired
10   resource pertains.

Also, database 60 may be divided into one or more tables, which may be distributed over more than one computer. For example, a first table may contain records associating UPC numbers with names of products or
15   manufacturers. A second table associates products and/or manufacturer names with Internet addresses. Thus, the process of using the UPC number to locate a network address may involve one or more steps. For example, database 60 might determine the name of a product
20   corresponding to a UPC number using a first table, and then determine network addresses corresponding to that product name using a second table. Even though multiple steps are involved, the UPC number is still "associated" in computer memory with the network address for purposes
25   of the invention.

4.   Operation of the Invention

Suppose a user is interested in Internet resources concerning a particular type of product. In accordance with the invention, the user can access those
30   resources by taking an ordinary specimen of the product -- a can of soup for example -- and entering all or part of the product's UPC product identification number 46. Database 60 uses the entered product identification number to look-up the associated URL, which is returned
35   to the user in the form of a HTML document.

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This operation is illustrated in FIG. 5. At a
block 80, the user loads his browser software onto local
host computer 28. The browser software is programmed to
automatically load the "Query Page" which provides access
5   to database 60. The user in this case is a human, but
alternatively a program (or "process") running on local
host 28 could be the "user" in the sense that it is the
process which is requesting information from the Internet
and supplying the UPC number.

10   At a block 82, the Query Page is transmitted to
local host computer 28 in the form of an HTML document.
Browser software resident on local host 28 displays the
Query Page on CRT screen 52. At block 84, the user (or
process) enters the first five or all ten digits of the
15   UPC product identification number encoded by symbol 46.
Because the UPC product identification number is printed
in both machine- and human-readable format (See FIG. 3),
this may be done by manual entry using keyboard, voice
recognition system or other input device. More
20   preferably, however, entry is accomplished by scanning
UPC symbol 46 affixed to article 48. Input device 44
reads UPC symbol 46, and generates an ASCII character
string which is read by CPU 30 via I/O port 38. If the
UPC number is scanned, then all 10 digits will generally
25   be entered. The UPC product identification number is
transmitted to the Web server resident on local service
provider 22, which at a block 86 looks up the entered UPC
number in database 60.

At block 88, database 60 retrieves all records
30   62-68 having UPC fields 70 and 72 that match the product
identification number entered by the user. The records
are conveyed to the user in the form of an HTML document.

The criteria at block 88 for whether UPC fields
70 and 72 "match" the product identification number may
35   be based on a "query by example" approach. For example,
suppose at block 84 the user only enters the manufacturer
portion (e.g. "31251") of a product identification

number. It is assumed in this case that the user is interested in any record 62-68 having a field 70 that matches the entered manufacturer portion. (Recall that the database 60 stores the UPC number in two fields -- field 70 for the first five digits (corresponding to manufacturer) and field 72 for the second five digits (corresponding to manufacturer's product)). Thus, at block 88, records 61, 64 and 65 are returned to the user, because field 70 in each of those records contains "31251."

If the user entered all ten digits of a UPC product identification number(e.g., "31251-00302"), then only records whose fields 70 and 72 matched "31251" and "00302," respectively, would be retrieved. (In this case, that would be record 64). If all ten UPC digits are entered, and no exact match is found, database 60 may be programmed to retrieve records (if any) where at least the manufacturer portion (that is, first five digits) matches field 70.

At block 90, browser software on local host computer 28 displays records retrieved at block 88 on CRT 52. The records are returned in an HTML document, which is displayed by the browser in a screen format 94, as illustrated in FIG. 6. In this example, records 62, 64 and 66 have been retrieved. Screen format 94 displays data from each record in a separate rows 96, 98 and 100, respectively. *If no matching records are found at block 88, a message such as "no records found" may be returned instead.*

Text from description field 76 of each of records 62, 64 and 66 is displayed as hypertext links 102, 104 and 106, respectively. Link 102 is associated with the URL of record 62, link 104 with the URL of record 64, and link 106 with the URL of record 66. When the user selects one of links 102-106 (by mouse click or otherwise), the browser software loads the URL associated

with the selected link to access the resource at the
location specified by that URL.

5.   Alternative Embodiments

5   The foregoing embodiment is just one example of
the present invention. Many alternatives are possible.
         Other Networks and Protocols. While the
present invention is illustrated with respect to a system
for accessing the Internet's World Wide Web, it could be
practiced using other Internet protocols (such as Gopher)
10   or other types of wide area networks and systems,
including those offered by "on-line service" providers
such as America OnLine® of Fairfax, Virginia or
CompuServe® of Columbus, Ohio or the Microsoft® Network
of Redmond, Washington.
15   In those cases, database 60 could be resident
on the on-line service provider's computer. The network
address information contained in database 60 could be
either Internet URLs, or locations within the on-line
service provider's environment. In this case, the
20   protocol used to communicate between local host 28 and
service provider 22 need not be HTTP or other Internet
protocol. However, service provider 22 can provide a
gateway to Internet 20, and access to a desired network
location on the Internet can be made using a URL
25   retrieved from database 60.
         Controlled Access. Database 60 need not be
publicly accessible. Access to database 60 can be
limited either by placing database 60 on a proprietary
network, or, if placed on an open network, using a
30   password or digital signature system to permit access
only to authorized persons. Also, records 62-68 may be
selectively accessible. For example, each record can
contain an additional field indicating whether the URL
contained in field 74 points to network location
35   containing material inappropriate for children. In that
case, database 60 can be programmed to return URL at

block 88 only if the user has supplied a proper password.

Automatic Jumping to Desired Location. In the disclosed embodiment, the URL associated with a selected UPC product identification code is returned to the end
5 user in an HTML document at block 88 of FIG. 5. The user can then hypertext link to the site corresponding to the URL. Alternatively, instead of displaying query results at step 90 (of FIG. 5), browser software in local host can automatically load the retrieved URL and point the
10 user to the site corresponding to that URL. An additional field in database 60 can provide a code indicating whether this feature should be enabled or disabled for a particular URL.

Identification Numbers and Symbologies. The
15 invention can be practiced using standard identification numbers and symbologies other than UPC numbers and formats. For example, EAN, ISBN and ISSN numbers and formats discussed above could be used.

Articles of Commerce. As shown in FIG. 7,
20 product identification numbers -- whether bar coded or otherwise -- may be placed all types of items, such as a consumer product 102, newspaper 104 or book 106, as well as coupons, fliers, cards and advertisements (not illustrated). For example, by placing a product's UPC
25 code on an advertisement for the product, the advertiser could, in accordance with the invention, facilitate access to Internet resources concerning the product.

Machine Reading Technology. In lieu of a bar coding, the invention could be practiced with product
30 identification information that is encoded using other technologies. For example, product identification information could be encoded on a magnetic strip affixed to a product, card or other article. In place of wand, local host computer could use a magnetic card reader.
35 Alternatively, the number could simply be printed in human-readable format, and an optional optical character recognition system could be used to facilitate entry.

<u>Direct Coding of Address</u>. In place of a
standard UPC symbol, bar code technology could be used to
encode the actual mnemonic or numeric (IP) network
address in machine-readable format. While this
5   arrangement does not achieve al the advantages of the
invention, it allows the user to easily enter desired
address information using a bar-code reader instead of
manually typing the address.

The direct coding of network addresses in shown
10   in the embodiment illustrated in FIGS. 8-10. Referring
to FIG. 8, a block diagram of the computerized apparatus
210 for interfacing with a computer network in accordance
with the invention is illustrated. Apparatus 210
includes a computer 212 which may be an IBM compatible
15   personal computer. Attached to computer 212 by a
suitable input/output interface 214 is a modem 216. Also
attached to computer 212 via an input/output interface
218 is a bar code reader 220. Bar code reader 220 is
designed to read conventional bar codes. Bar code
20   technology is described generally in U.S. Pat. No.
5,115,326 issued May 19, 1992 and entitled "Method of
Encoding an E-Mail Address in a Fax Message and Routing
the Fax Message to a Destination and Network", and U.S.
No. 5,420,943 issued May 30, 1995 and entitled "Universal
25   Computer Input Device," the disclosures of which are both
hereby incorporated by reference.

Modem 216 is adopted for electronic
communication via a suitable telephone link 222 with a
service provider 224. Service provider 224 may be an
30   Internet service provider or a proprietary on-line
service such as Prodigy or America On-Line. Service
provider 224 in turn is electronically connected by a
suitable communication link 226 to a remote server 228.
For purposes of illustration, we assume that remote
35   server's 228 numeric network address is 25700-00220, and
that the assigned address mnemonic is
http://sample@www.com.

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Computer 212 is equipped with communication software for establishing and maintaining a communication link with service provider 224 via modem 216 and telephone link 222. Computer 212 is also equipped with
5 software (see FIGS. 8 and 10) such as Netscape Navigator brand Web browser software (version 1.0) which enables it to request and receive information from remote server 228 via service provider 224. To operate software 230, a user (not shown) enters an alphanumeric address such as
10 sample@www.com. Browser software 230 sends service provider 224 a request for the information contained at address corresponding to the mnemonic sample@www.com. As explained above, that mnemonic address belongs to remote server 228.
15   Using the address sample@www.com, service provider 224 routes the request to remote server 228 via communication link 226. Remote server 228 responds by sending the desired information via communication link 226 to service provider 224, which relays the information
20 to computer 212 via modem 216 and telephone link 222. Once the information is received by computer 212, browser software 230 displays the information in a useful format for the user.

In accordance with the invention, a document
25 232 is provided as shown in Fig. 9. Document 232 may be magazine article, advertising or other printed matter. As shown in FIG. 9, Document 236 contains human readable information 234 about resources available at a location on a network such as the Internet, including resources
30 provided by remote server 228. In this example, human readable information 234 includes remote server's 228 mnemonic address -- http://sample@www.com. A bar code indicia 236 is placed near human readable information 234. Bar code 236 contains remote server's 228 numerical
35 address (25700-00220) in machine readable form.
Alternatively, bar code 236 could contain a machine readable version of the mnemonic address. Under

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that arrangement, the bar coded digits would correspond
to alphanumeric symbols of the mnemonic address. For
example, the bar coded number "97" could correspond to
the character "a". In that case, however, bar code 236
5   may have to be exceptionally long.

If the user wants access remote server 228, he
or she scans bar code 236 using bar code reader 220. Bar
code reader 220 generates a signal on input/output
interface 218 corresponding to the numeric address
10   encoded by bar code 236 (which for purposes of
illustration we assume to be 25700-00220, as shown in
FIG. 9). Browser software 230 on computer 212 reads the
numeric address via input/output interface 218, and
forwards it to service provider 224, along with a request
15   for information contained at the location corresponding
to that address. Service provider 224 determines that
the numeric address is that of remote server 228, and
routes to the request for information to remote server
228.

20   Referring to FIG. 10, the operation of browser
software 230 is shown in more detail. In an initial step
238, browser software attempts to read input from bar
code reader 220. At a decision block 240, browser
software 230 determines whether reader 220 has input. If
25   no input is available, control returns to block 238,
where browser software 230 again attempts to read bar
code reader 220. If input is available at decision block
240, then control moves to a block 242 where browser
software 230 transmits the input read at block 238 to
30   service provider 224. There are other ways to handle
input from bar code reader 220, and more sophisticated
techniques may be used in actual commercial embodiments
of the invention.

Service provider 224 interprets the input as a
35   numeric network address. In this case, we have assumed
that the address is that of remote server 228. Service
provider 224 forwards a request for data to remote server

228. At a block 244, the requested data contained on remote server 228 is received by browser software 230 via service provider 224. Once received, the data is available for whatever use required by the user. Control
5 then returns to block 238 where the foregoing process is repeated indefinitely.

In effect, the necessity of manually typing in the mnemonic address sample@www.com is eliminated. Instead, the numeric address is obtained from the bar
10 code indicia 236 by use of bar code reader 220. As explained above, bar code 236 could contain the mnemonic as well as numeric address. Browser software 230 could be programmed to accept either format (mnemonic or numeric) as input from bar code reader 220, with the
15 default expectation being that the bar coded data is a numeric address unless the user otherwise specifies. Alternatively, the first coded number of bar code 236 could indicate whether the information that follows represents a numeric or mnemonic address. If bar code
20 236 can contain either mnemonic or numeric addresses, then browser software 230 should include a flag or other indication alerting service provider 224 as to the format of the transmitted data.

The foregoing embodiments are just two examples
25 of the present invention. Many alternatives are possible. For example, in lieu of a bar code scanning device, a card reader could be employed. The card reader would read a magnetic stripe affixed to a card or other printed matter. The card would contain human-readable
30 information about a network resource, and the magnetic strip would contain the resource's numeric or mnemonic address in machine-readable format. Alternatively, a RF data collection scanner or CCD scanning system could be used. Bar code symbol 46, 236 could also be associated
35 with specific commands such as "forward", or "back," or command sequences used to access information.

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We claim:

1   1.   A system for using an article of commerce
2   to access a remote computer, comprising:
3   (a) a machine-readable indicia associated with
4   the article of commerce, said indicia encoding at least
5   one of a plurality of identification numbers, said
6   encoded identification number corresponding to the
7   article in accordance with an extrinsic standard;
8   (b) input means for generating a query signal
9   corresponding to said encoded identification number;
10   (c)   a database containing a plurality of
11   network addresses and said plurality of identification
12   numbers, each of said identification numbers being
13   associated with at least one of said plurality of network
14   addresses; said database being responsive to said query
15   signal for providing one of said network addresses which
16   is associated with said encoded identification number;
17   (d)   a local host adapted for network
18   communication; and
19   (e)   a first network containing a plurality of
20   nodes, each having an assigned network address; said
21   network being operatively coupled to said database for
22   allowing communication between said local host and that
23   one of said nodes whose assigned network address
24   corresponds to the network address provided by said
25   database.

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2. The system of claim 1 where said machine-readable indicia is a bar code, and wherein said input means includes a bar code reader.

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3. The system of claim 2 where said identification number is at least a portion of a Uniform Product Code.

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4. The system of claim 1 wherein said indicia is both machine- and human-readable, and wherein said input means includes a keyboard for manually entering said identification number.

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5. The system of claim 1 wherein said local host is a single-user computer.

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6. The system of claim 1 wherein said local host is a multi-user computer with a plurality of user terminals.

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7. The system of claim 1 wherein said local host computer is a node on said network having a network address.

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8. The system of claim 1 further comprising a second network, wherein said local host computer is connected to said second network, said second network including a service provider computer that is a node on said first network.

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9. The system of claim 8 wherein said database is resident on said second network.

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10. The system of claim 1 wherein said database is resident on said local host.

1   11.   The system of claim 1 wherein said
2   database is resident on one of said nodes that is remote
3   from said local host.

1   12.   An apparatus for using an article of
2   commerce to generate the network address of a computer on
3   a network, comprising:
4   (a) reader means for generating an output
5   signal corresponding to an article identification number
6   which is used to identify the article of commerce in
7   accordance with a standard;
8   (b) a database having a plurality of
9   identification numbers including said article
10 identification number, and a plurality of network
11 addresses, and associating each of said identification
12 numbers with at least one of said network addresses; and
13   (c) control means responsive to said output
14 signal and operatively coupled to said database for
15 retrieving from said database at least one of those of
16 said network addresses which correspond to said article
17 identification number.

1   13.   The apparatus of claim 12 wherein said
2   identification numbers are Uniform Product Codes.

1   14.   The apparatus of claim 12 wherein said
2   network addresses are Uniform Resource Locators.

1   15.   The apparatus of claim 12 further
2   comprising a local host and a remote host, each adapted
3   for network communication, wherein said reader means is
4   resident on said local host, and said database is
5   resident on said remote host.

1   16. A database comprising:
2   first computer memory containing a plurality of

3   identification numbers borne by articles of commerce,
4   said identification numbers used to identify articles of
5   commerce;
6   second computer memory containing a plurality
7   of network addresses corresponding to remote information
8   resources relating to articles of commerce, said
9   resources being accessible via a network; and
10   means for associating each of said plurality of
11 identification numbers in said first memory with at least
12 one of said network addresses in said second memory.

1   17.   The database of claim 16 wherein said
2   database is a relational database, and said first memory
3   is a first field within said relational database, and
4   second memory is a second field in said relational
5   database.

1   18.   The database of claim 16 wherein said
2   first and second memories are random access memory.

1   19.   The database of claim 16 wherein said
2   first and second memories are secondary storage.

1   20.   The database of claim 16 wherein said
2   identification numbers are Uniform Product Codes.

1   21.   The database of claim 16 wherein said
2   network addresses are Uniform Resource Locators.

1   22.   A method for generating the address of a
2   node on a network, comprising the steps of:
3   (a) associating in computer memory at least a
4   portion of an identification number with the node's
5   network address; said identification number having
6   recognized significance as a number identifying an
7   article of commerce;

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8   (b) providing an article of commerce bearing an
9   indicia on which said identification number is encoded;
10   (c)   reading at least a portion of said
11   identification number from said indicia; and
12   (d)   retrieving from said computer memory the
13   network address associated therein with said product
14   identification number.

1   23.   The method according to claim 22 wherein
2   said identification number is a Uniform Product Code.

1   24.   The method according to claim 22 where
2   said network address is a Uniform Resource Locator.

1   25.   The method according to claim 22 wherein
2   said indicia is encoded in machine-readable format.

1   26.   The method according to claim 22 where
2   said indicia is encoded in human-readable format.

1   27.   The method according to claim 22 wherein
2   said step of reading is performed using a bar code
3   reader.

1   28.   The method according to claim 22 wherein
2   said step of reading is performed by a human reading said
3   indicia and entering said identification number using a
4   keyboard.

1   29.   The method according to claim 22 wherein
2   said computer memory includes a database having one or
3   more tables containing said identification number and
4   said network address.

1   30.   The method according to claim 29 wherein
2   said tables are distributed over a plurality of
3   computers.

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31. The method according to claim 29 wherein said tables are resident on a single computer.

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32. A method for disseminating network addresses using articles of commerce, comprising the steps of:

(a) generating a number corresponding to a network address;

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(b) encoding the addresses on a machine readable indicia; and

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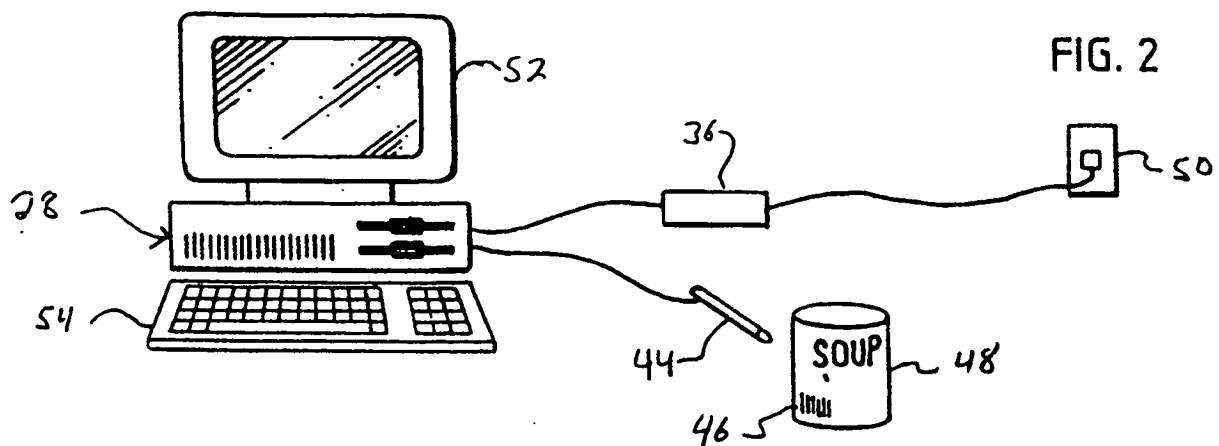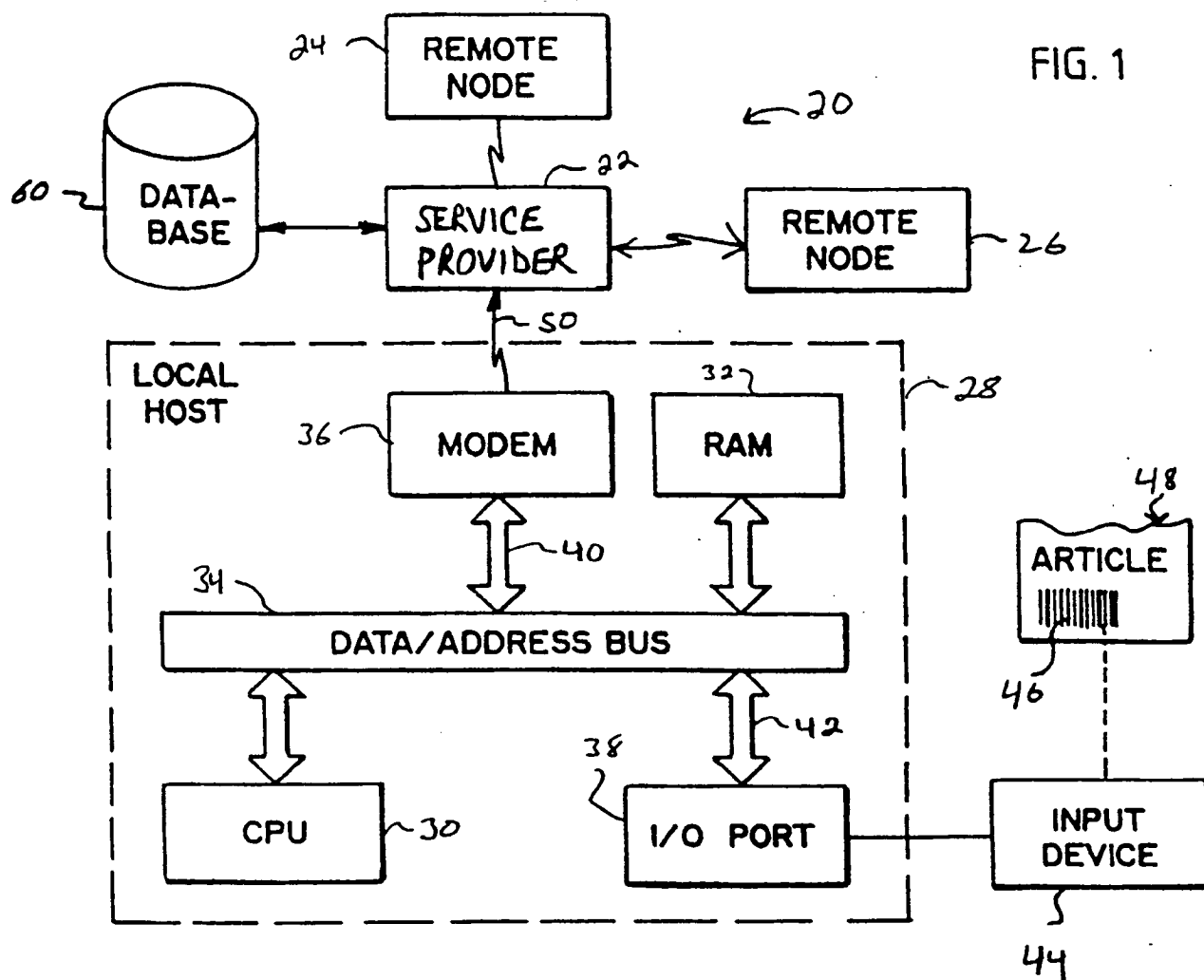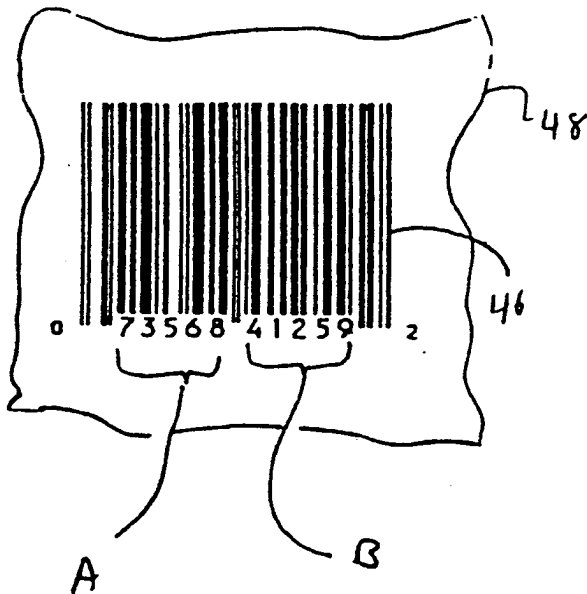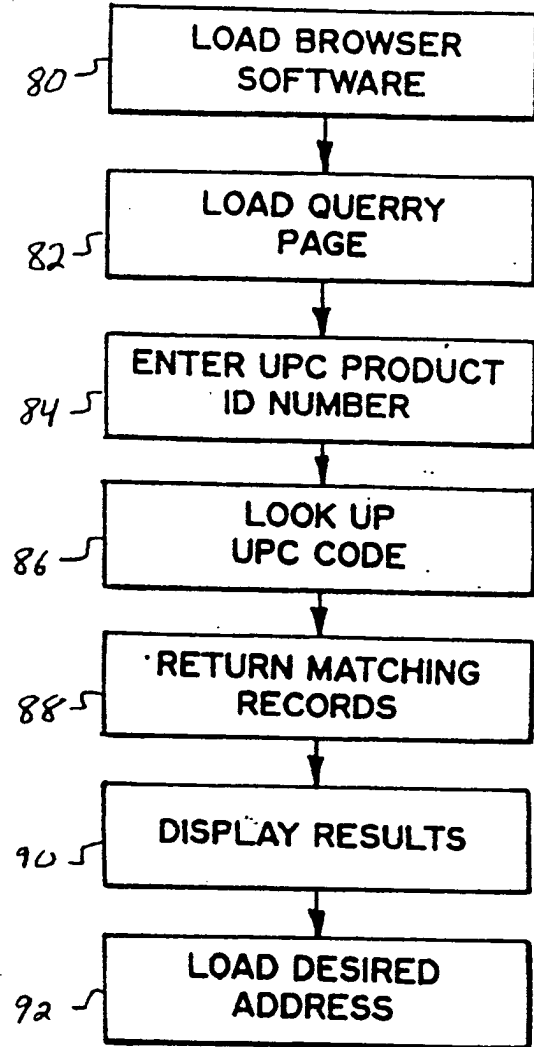(c) placing said indicia on the exterior surface of an article of commerce.

FIG. 1

FIG. 2

FIG. 3

FIG. 5

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0 73568 41259 2
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48

46

A

B

FIG. 5

80	LOAD BROWSER SOFTWARE
82	LOAD QUERRY PAGE
84	ENTER UPC PRODUCT ID NUMBER
86	LOOK UP UPC CODE
88	RETURN MATCHING RECORDS
90	DISPLAY RESULTS
92	LOAD DESIRED ADDRESS

FIG. 4

UPC-A	UPC-B	URL	DESC
31251	00301	sample.soup.com/subfile/index.html	soup
31251	00302	sample.soup.com/promotion/main.html	giveaway
31251	00400	test.milk.org	milk
4205		cars.com/testdrive/main.html	cars
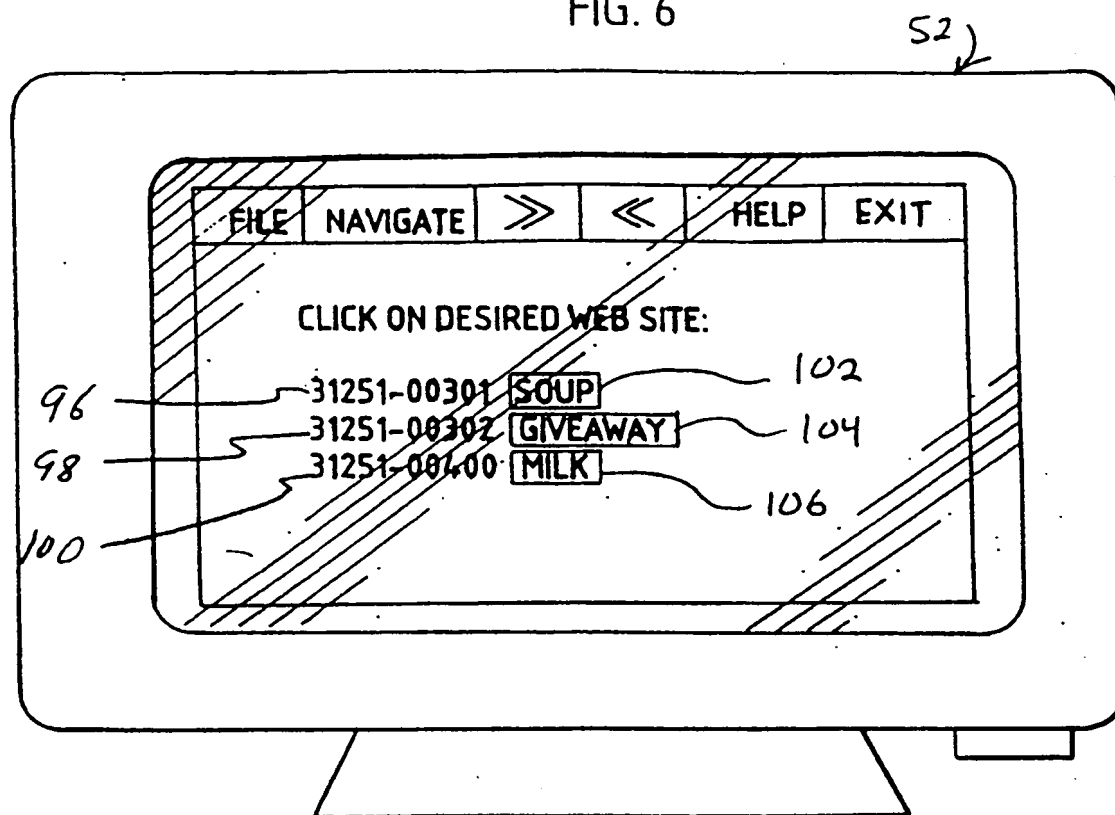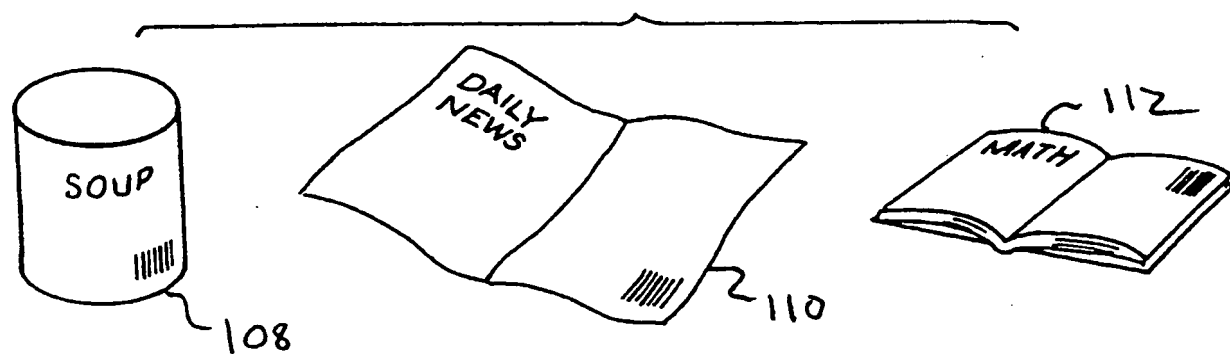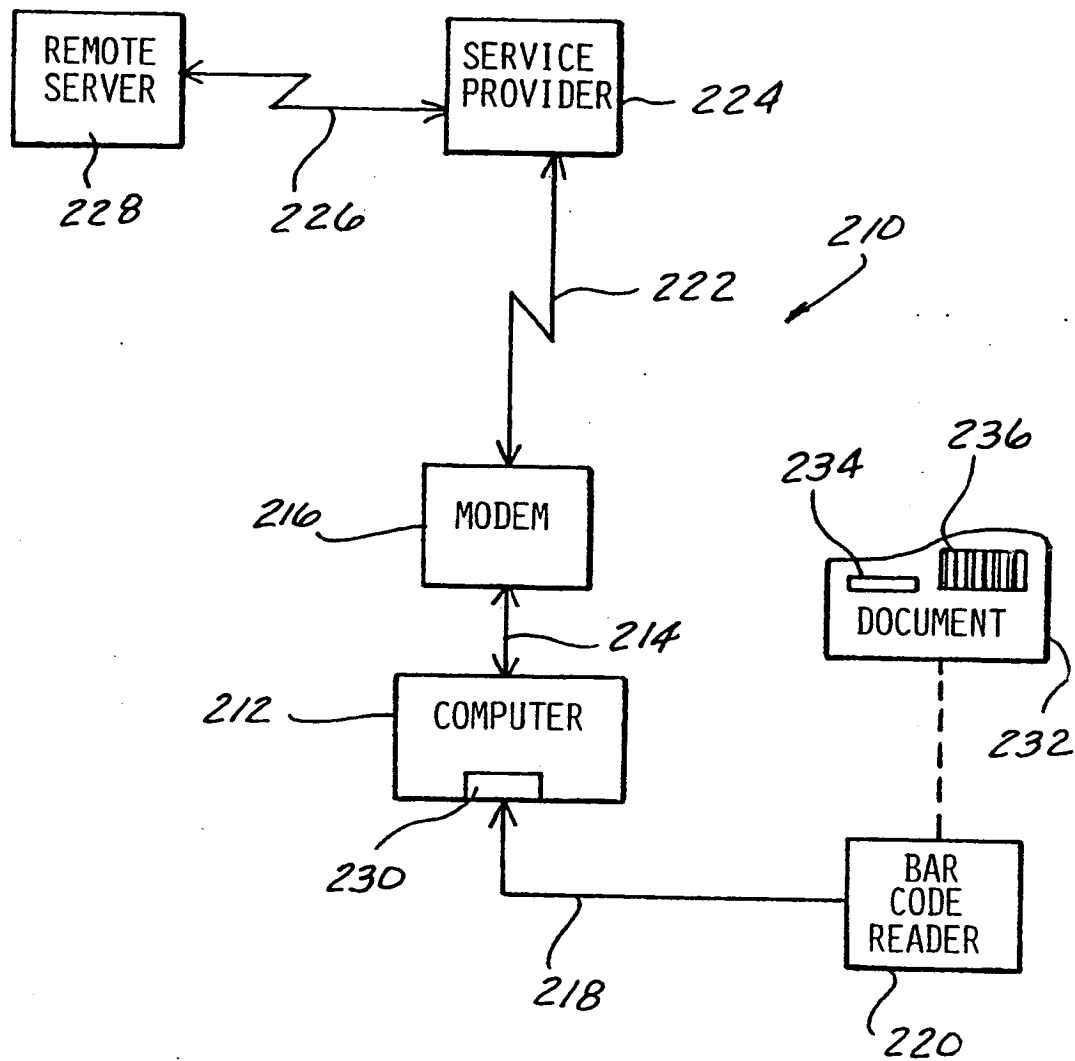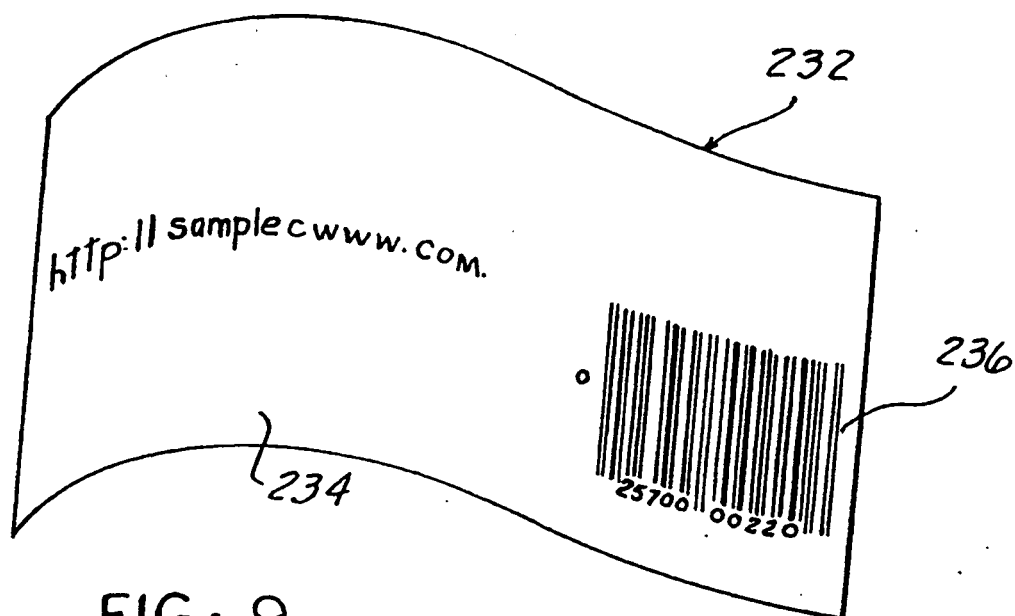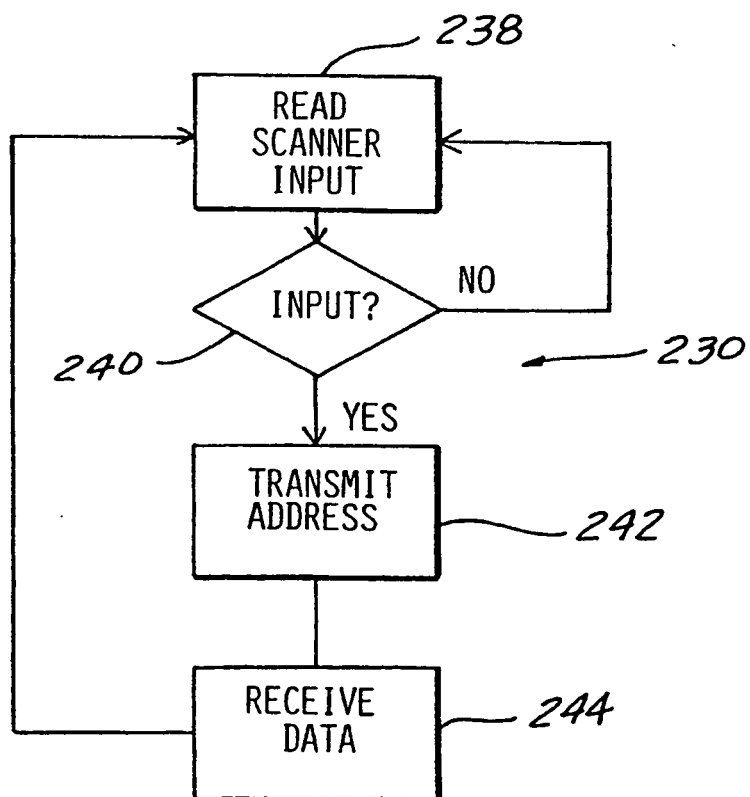
70　72　60　74　76

62　64　66　68　78

FIG. 6

52

CLICK ON DESIRED WEB SITE:

96 ─ 31251-00301 | SOUP | ─ 102
98 ─ 31251-00302 | GIVEAWAY | ─ 104
100 ─ 31251-00400 | MILK | ─ 106

FILE | NAVIGATE | ≫ | ≪ | HELP | EXIT

FIG. 7

SOUP ─ 108

DAILY NEWS ─ 110

MATH ─ 112

FIG· 8

232

236

http://samplecwww.com.

234

25700 00220

FIG · 9

238

READ SCANNER INPUT

INPUT? — NO

240

230

YES

TRANSMIT ADDRESS — 242

RECEIVE DATA — 244

FIG - 10

INTERNATIONAL SEARCH REPORT

A.	CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 3/06, 13/00; H02M 11/00
US CL : 395/800, 200.1, 600, 829; 358/440, 467, 402, 403

According to International Patent Classification (IPC) or to both national classification and IPC

B.	FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/800, 200.1, 600, 829; 358/440, 467, 402, 403

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS

C.	DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,115,326 (BURGESS ET AL.) 19 MAY 1992, col.2, Lines 35-64; col.9, Lines 26-46; col.10, Lines 19-49.	1,16,22-32
X	US, A, 5,111,391 (FIELDS ET AL.) 05 MAY 1992, col.4, Lines 37-65; col.6, Lines 15-32.	1,16,22-32
X	US, A, 5,398,336 (TANTRY ET AL.) 14 MARCH 1995, col.6, Lines 27-45; col.9, Lines 10-42; col.10, Lines 10-56; col.11, Lines 8-33; col.12, Lines 22-43.	1-30

☐ Further documents are listed in the continuation of Box C.   ☐ See patent family annex.

*	Special categories of cited documents:
"A"	document defining the general state of the art which is not considered to be part of particular relevance
"E"	earlier document published on or after the international filing date
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O"	document referring to an oral disclosure, use, exhibition or other means
"P"	document published prior to the international filing date but later than the priority date claimed

"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 AUGUST 1996	0 2 OCT 1996

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	DANIEL H. PAN
Facsimile No. (703) 305-3230	Telephone No. (703) 305-9696

Form PCT/ISA/210 (second sheet)(July 1992)★